

Wilderness and Climate Change: Mitigating Conflict by Confronting the Human–Nature Relationship

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Abstract

IT IS BECOMING INCREASINGLY CLEAR THAT HUMANS WILL ALWAYS AFFECT ECOSYSTEMS AT ALL levels. However, the historical interpretation of the human-nature relationship has been one of separation. That is, the processes of the biophysical and the social worlds are distinct, where the former is natural and the latter is unnatural. We argue that this understanding is the impetus for much of the tension between wilderness policy and practice, and through conceptualizing a combined biophysical and social “natural,” a theory posited by many before us, tensions between wilderness policy and practice are mitigated. Further, the decision to mitigate or adapt to climate change impacts in wilderness is made at the policy level and will impact wilderness management ubiquitously. Therefore, understanding the influence of the perceived human-nature relationship on wilderness policy is imperative, as agencies question wilderness’ role in climate change strategies.

Introduction

Designated wilderness is intended to provide the appearance of naturalness, the feeling of untrammled land, and opportunities for solitude. Yet, the beliefs to which wilderness advocates subscribe are no more real than any religious ideals (Cronon 1996). Terms such as natural are difficult to concretize because they are socially constructed qualities ascribed to wilderness, with meanings unique to the individual. Managing wilderness under this ambiguity can be a contentious task.

In this paper we use an analogy of the scientific method to show that the Western construct of naturalness (humans as separate from nature), while once true, has become false as science and understanding of global ecosystems have progressed. Our hypothesis is that wilderness policy is based on a static, romantic theory of humans separate from nature, that no longer fits with a dynamic scientific and cultural understanding. We use case studies in management to test our hypothesis, and as a final test we apply a modern

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understanding of climate change to the human-nature relationship to show that the theory no longer holds.

The historical human-nature relationship

Wilderness, as defined by the Wilderness Act, exists as the archetypal contrast to “those areas where man and his works dominate the landscape.” Wilderness is where primeval, spontaneous nature prevails (Rolston 1991) and thus separates humans from nature. The Western conceptualization of the human-nature relationship presupposes a perceived degree of control over the non-human world, and thus sets apart humans from nature. Indeed, science supported the notion that a natural space existed free from human interaction. Nearly fifty years of wilderness management provides ample evidence of the misfit between the traditional human-nature relationship and our current reality.

Over time, scientific and cultural understanding have begun to accept that humans are perpetually intertwined with nature (Sprugel 1991). Wilderness managers have been unsuccessfully fighting to erase unintentional human impacts in wilderness to satisfy the social need for the perceived sense of naturalness. The result is tightened control on the resource that is intended to be free.

Now, climate change is an undeniable rebuke to the Western construct: there is nowhere on earth unaffected by humans. This is most troubling for the foundational theories of the wilderness preservation system. If wilderness is a place without human impacts, then climate change erases the philosophical and geographical boundaries containing wilderness. Wilderness is now struggling to find an identity that can bridge modern science and romantic notions of natural, untrammled land.

Testing the human-nature relationship using the scientific method

In the following paragraphs we consider three management scenarios to test our hypothesis that humans are no longer separate from nature. The Western construct of the human-nature relationship is the model to be tested, the Wilderness Act is the hypothesis, and management is the test of the hypothesis.

In the late 1990s, scientists found that St Mary’s Wilderness, in George Washington and Jefferson National Forests, was affected by acid deposition. Stream acidity was high enough that many of the native species could no longer survive. The human-caused acid deposition was threatening the wilderness character of the area (Cole and Yung 2010). Managers were faced with the dilemma to intentionally manage, or trammel, to mitigate the effects of the deposition, or hands-off managing and intentionally letting the ecosystem “degrade” for the sake of preserving the untrammled quality. This case shows that in at least one wilderness area, wilderness has been unintentionally impacted by exogenous human behavior. Management responded by liming the streams to directly treat the impact. The localized affect of human-caused acid deposition shows that these ecosystems are not natural, nor are they untrammled, due to management decisions.

Fire is one of the most difficult and complex management problems in wilderness and non-wilderness. Our understanding of the role of fire in forest ecosystems has evolved considerably and remains at the forefront of forest policy debate today. Where we once believed fire was a destructive force that we needed to mitigate at all costs, we now know it is essential to healthy ecosystems (Pyne 2004). We have also learned that Native Americans were igniting fires long before the first wilderness area was protected, bringing into question the entire notion of pristine ecosystems (Sprugel 1991). In many wilderness areas managers are now faced with a trammel versus natural dilemma; actively managing to reduce fuel loads or accept the ecological effects of historic fire suppres-

sion. High fuel loads and resulting fire potential are evidence that wilderness is not free from human impacts. That active management is necessary to protect ecosystems and humans from catastrophic fire proves we can no longer untangle human action from ecosystem processes.

Our third example is in the High Uintas Wilderness of northeastern Utah. Prior to its Wilderness designation, 13 streams were dammed in the High Uintas to regulate valley irrigation water. Eventually, the dams reached a state of disrepair that fell outside safety guidelines, and posed a risk to human life and downstream infrastructure outside the wilderness boundary. The Forest Service needed to act; improve the dams to current standards or remove them. Extensive planning and careful consideration ensued, comparing the impacts of primitive versus modern tools to achieve the same goals, and the impacts of no action. As contradictory as it seems, the analysis pointed towards using helicopters, excavators, and bulldozers as the minimum tool to complete the project. In this scenario, policy mandates trammeling to change a body of water from a utilitarian reservoir to a high-mountain lake. While the latter is arguably more natural, both are designed with human intent.

The examples presented above serve two purposes. They show wilderness areas have been, and will continue to be, impacted by humans, forcing managers to trammel in order to remove unintended impacts. They also illustrate how the theory of humans as separate from nature could persist at the policy level because the challenges to wilderness theory occurred at the management level.

Climate change and wilderness

Although many have argued that human behavior is intertwined with ecosystems throughout the world (Latour 1993), the omnipresent anthropogenic effects of climate change are even more difficult to deny. While some of the effects of climate change may be localized, such as species migration or drought, climate change on the whole is global, and thus is no longer simply a localized management decision but a national-level policy problem. Anthropogenic climate change challenges and defeats the fundamental notion that there exists a natural, pristine ideal nature to be achieved through removing a sufficient number of human-caused impacts on wilderness areas. A definition of natural informed by the Western construct no longer exists. Climate change forces us to reconsider the socio-cultural understanding of all things natural, from how we define a well-functioning ecosystem, to untrammled wilderness areas. Climate change, the ultimate test of the wilderness hypothesis, irrefutably proves the theory is false: humans are not separate from nature.

Unfortunately, the answer to reconciling climate change and wilderness is not simple. The authors of the Wilderness Act left much to be interpreted and reinterpreted in wilderness policy. Managers are tasked with managing an area for the appearance of naturalness, but are left to define the meaning of natural, and how to achieve its appearance. Whether or not managers should actively trammel to mitigate the effects of exogenous, unintentional human impacts, such as climate change, remains unclear.

That humans have impacts on nature is not new. The language of the Wilderness Act has been massaged and reinterpreted ad nauseam to help justify various actions or inactions in wilderness. We draw two conclusions regarding wilderness and climate change management from an idea posited by Mosse (2004) to distinguish between good policy and good management.

First, where management operates at the ground level, policy operates at the level of

theory. Since climate change presents problems at a national scale, policy makers are now facing the inconsistencies traditionally faced by land managers. The role of wilderness in climate change mitigation and adaptation (CCMA) is a question asked at the policy level and is thus a theoretical challenge.

Second, we argue that management action to mitigate imminent threats to an ecosystem's resilience has created a cultural norm within management agencies of doing; taking action, or trammeling, to preserve ecosystem resilience. Due to our faith in our ability to understand and define well-functioning ecosystems, managers now face more political and social risk in not managing than in managing (Landres 2010).

A trammel here and there to improve the appearance of naturalness does not challenge the idea of wilderness at a national or global level. However, the conditioned responses, when aggregated at the national level, bias and inform the policy makers in favor of action. Thus, a single conditioned response at the management level has far less impact on wilderness management as a whole, but the sum of all responses has profound effects at the policy level, and on the Wilderness idea. The decision to actively or not actively manage climate change impacts in wilderness at the policy level sets a national precedence for wilderness management in all 757 wilderness areas. Because of climate change, policy makers are facing new pressures and the direction they take is vitally important both for defining and preserving the values that make wilderness unique. If acted upon hastily, wilderness and climate change management will result in restoration efforts to specific threats at specific times. However, climate change and wilderness management are not temporally or spatially explicit. We should instead think about long-term management of dynamic anthropogenic influences in all wilderness areas.

Conclusion

Cole and Yung moved the discussion forward by drawing attention to an undeniable and ubiquitous human influence on the global environment, and debating whether the term natural is an adequate management objective for wilderness (Cole and Yung 2010). Their recommendations to focus instead on ecological integrity, resilience, historical fidelity, and the autonomy of nature provide a picture of the complexities that remain, even after natural is deposed as a management objective (Cole and Yung 2010). Managing for ecological integrity and resilience implies trammeling whereas managing for historical fidelity and the autonomy of nature implies a 'hands off' approach. Thus, wilderness managers are still forced to decide the relative importance of untrammeled and natural. The remaining tension indicates there is more to uncover in reconciling climate change and wilderness management.

Although science and knowledge are slowly breaking down the barriers between humans and nature, naturalness remains enigmatic because the romantic foundation of creating a place where humans are separate from nature persists. Naturalness lives in the collective psyche of our society and in the minds of our children. Where a scientist sees a forest ecosystem impacted by climate change or fire manipulation, another visitor may see a pristine wilderness. The wilderness manager must live knowing that the wilderness area under their care has been trammeled but the visitor only sees what appears natural in contrast to their daily lives. There is still profound importance in wilderness, and we must call upon management to preserve what is most commonly valued in our wilderness preservation system. Wilderness is unique because it provides the appearance of a place to experience solitude, serenity, naturalness, and all other attributes each individual professes wilderness provides. Wilderness management may or may not change, but one

thing is clear, we can no longer justify our action or inaction in wilderness areas as preserving nature without humans. We must accept that humans impact nature and wilderness.

The theory that humans are separate from nature has been the impetus for much of the tension between wilderness policy and practice. Conceptualizing a combined biophysical and social natural relieves some of the inherent tensions in removing the appearance of human impacts in wilderness. Wilderness can play two roles in climate change management. First, it can provide for measurable observation of untrammelled ecosystem change. Alternatively, wilderness managers can attempt to retain the appearance of natural ecosystems by actively managing to mitigate climate change impacts. Neither alternative is more correct, nor are they mutually exclusive. Unless we accept unintentional human impacts on the natural world, both alternatives perpetuate a tension between managing wilderness and the theory that humans are somehow separate from nature. Understanding humans are part of the natural world allows management to justify their actions to care for the unique qualities wilderness areas provide.

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